

APPENDIX D

*Santa Monica Mountains Conservancy-Owned
Malibu Bluffs Focused Fire Protection Plan*

APPENDIX D

SANTA MONICA MOUNTAINS CONSERVANCY-OWNED MALIBU BLUFFS FOCUSED FIRE PROTECTION PLAN Modified Redesign Alternative

Prepared for:

**Santa Monica Mountains Conservancy/
Mountains Recreation Conservation Authority**



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**Santa Monica Mountains Conservancy-Owned Malibu Bluffs
Focused Fire Protection Plan
Modified Redesign Alternative**

TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
1.0 INTRODUCTION.....	1
2.0 PROJECT DESCRIPTION	1
3.0 ENVIRONMENTAL SETTING	2
3.1 Location	2
3.2 Access	2
3.3 Topography.....	2
3.4 Flammable Vegetation.....	5
3.5 Climate.....	5
4.0 RISK ASSESSMENT	5
4.1 Fire Behavior Modeling.....	5
4.2 Result – Exposure to Wildland Fire.....	9
5.0 PROJECT EMERGENCY RESPONSE, INFRASTRUCTURE, AND FIRE PROTECTION FEATURES	9
5.1 Emergency Response.....	9
5.2 Water Supply	11
5.3 Fire Access Roads.....	12
5.4 Building Construction.....	13
5.5 Fire Protection Systems	13
5.6 Defensible Space.....	14
5.7 Vegetation Management.....	15
6.0 SITE-SPECIFIC FIRE PROTECTION MEASURES.....	16
6.1 Relocation Planning.....	19
6.1.1 Wildfire Emergency Pre-Plan.....	19
6.2 Temporary On-Site Sheltering – Contingency Option	23
7.0 CONCLUSION	24
8.0 MAINTENANCE AND LIMITATIONS.....	25

ATTACHMENT

- 1 Select Project Area Photographs

**Santa Monica Mountains Conservancy-Owned Malibu Bluffs
Focused Fire Protection Plan
Modified Redesign Alternative**

Section **Page No.**

LIST OF FIGURES

1 Conservancy Owned Malibu Bluffs.....3
2 BehavePlus Analysis Map7

LIST OF TABLES

1 Fire Behavior Model Variables.....6
2 BehavePlus Fire Behavior Model Results6

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

1.0 INTRODUCTION

This Fire Protection Plan (FPP) has been prepared as an evaluation of the adverse environmental effects that the proposed Malibu Parks Public Access Enhancement Plan - Public Works Plan improvement project, Modified Redesign Alternative at the Santa Monica Mountains Conservancy-Owned Malibu Bluffs (Bluffs) may have from wildland fire. It further evaluates methods to reduce those effects to ensure that the above referenced project does not unnecessarily expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

This FPP utilizes a "systems approach" for specifying fire protection measures. The measures consist of the components of fuel modification, structural protection, water supply, fire protection systems, access (ingress/egress), and emergency response. The "Master" FPP provides additional details regarding wildfire risk assessment, fire history, fire behavior modeling, and construction and fire protection features that will be provided at this site.

2.0 PROJECT DESCRIPTION

The proposed project includes improvements to the Bluffs as illustrated in Figure 1. As proposed, the project would include the following improvements on portions of the 84-acre project site:

- Parking improvements
 - Two (2) new parking areas and 40 parking spaces
- Day-use area for picnicking
- Restroom facilities
- Three (3) Optional Emergency Fire Shelters
- Two permanent camp host and/or park administration/employee quarters
- Two RV Camp Host Accommodations
- Two 10,000-gallon water tank and hydrants with hose reels
- Fire Engine Shed
- Four camp areas with 35 total campsites

Specific details regarding the Bluffs proposed improvements can be found in the Modified Redesign Alternative's Environmental Impact Report Project Description, (Appendix MRA-1).

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

Select project area photographs are provided in Attachment 1. The following sections provide summaries of the site's environmental setting, wildfire risk, and provided risk-reducing features.

3.0 ENVIRONMENTAL SETTING

3.1 Location

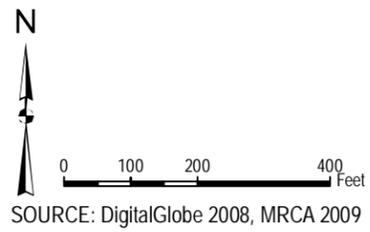
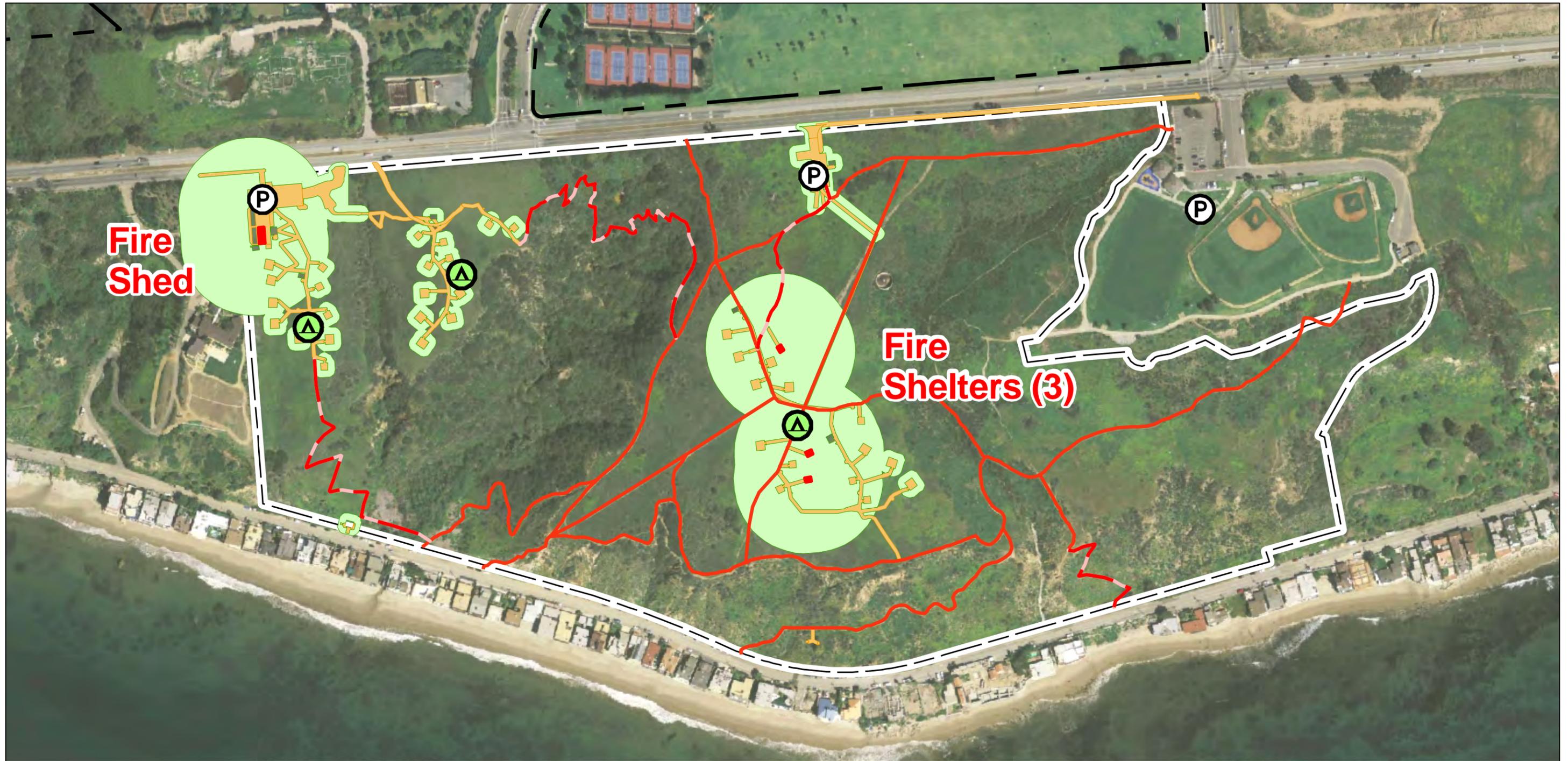
The property is located at 24250 Pacific Coast Highway (PCH) on a blufftop in the City of Malibu and contains a large expanse of undeveloped open space directly adjacent to Malibu Road and the shoreline (Figure 1). The park is surrounded by privately owned land to the west, the City's 10-acre Malibu Bluffs Park, and private land to east, Malibu Road, residential development, and the shoreline to the south, and PCH and Pepperdine University to the north.

3.2 Access

The Bluffs site is accessed by paved roads from PCH. The project site's primary access is directly from PCH where an existing parking lot supports shared access to the open space area and the City's adjacent Malibu Bluff Park. The park may also be accessed via public transit where a MTA bus stop is located near the property on PCH and on Malibu Road (both directions). Pedestrian access points to the park are at the existing parking lot, along PCH, and along Malibu Road. The Bluffs currently does not include parking separate from the Malibu Bluffs Park. The project will provide additional parking and road improvements designed to aid overall access to the Bluffs.

3.3 Topography

The project site is located atop bluffs directly north of Malibu Road. Elevations range from roughly 27 feet above mean sea level (amsl) at Malibu Road to nearly 195 feet amsl in the extreme northeastern portion of the project. The steepest portions of the site are associated with two drainages that trend north-south through the property where slopes may reach 30% or steeper. Also, the southern portion of the project slopes from the bluff tops to Malibu Road and approaches 30% or more for some sections. The proposed project areas are relatively flat, gradually sloping from north to south and from east to west across the site.



- | | |
|-------------------------|---------------------------------------|
| Proposed Camping Area | Trail Corridors |
| Proposed Parking Area | Primary Trail (see P&S Project Plans) |
| Proposed Facilities | Primary Trail (Existing) |
| Fuel Modification Zones | Connector Trail (Existing) |
| Malibu City Limits | Backbone Trail |
| Park Boundaries | Other Existing Trail |

FIGURE 1
Malibu Bluffs Open Space

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Focused Fire Protection Plan
Modified Redesign Alternative**

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3.4 Flammable Vegetation

The Bluffs is, in its entirety, naturally vegetated with native and non-native plant species. The majority of the park area is characterized as annual grassland and coastal sage scrub habitat; however, two drainages traverse the open space in a general north-south direction along which southern willow scrub habitat occurs. In addition, areas containing a mix of native and non-native grassland occur in various areas of the park. The majority of the property, particularly along the site's drainages and where large stands of coastal sage scrub occur, is designated as an Environmentally Sensitive Habitat Area in the County of Los Angeles Malibu Local Coastal Program Land Use Plan (County LUP) for the Malibu and Santa Monica Mountains area.

3.5 Climate

The project area includes a Mediterranean-like climate; that is, warm, dry summers and wetter winters. Precipitation typically occurs between December and March. The prevailing wind is from the west with fall Santa Ana winds from the northeast that may gust to 70 mph. The project area's climate, as with most of southern California, has a large influence on the fire risk as drying vegetation (fuel moisture for 1-hour fuels in the single digits is possible) during the summer months becomes fuel available to advancing flames should an ignition be realized. The site is very near the Pacific Ocean; humidity, and subsequently plant moisture, remains higher than areas further from the ocean's influence. However, based on fire history, the site's vegetation does become susceptible to burning based on the climate that dominates this area. A wind driven fire from the north recently (2008) burned across PCH and ignited portions of Malibu Bluffs.

4.0 RISK ASSESSMENT

4.1 Fire Behavior Modeling

FlamMap fire behavior modeling was conducted for the Plan area and surrounding Malibu/Santa Monica Mountains region and is summarized in the project's Master FPP. More focused fire behavior modeling utilizing BehavePlus 4.0.0 was conducted for this site. A general discussion of the BehavePlus analysis, including weather input variables, is presented in the project's Master FPP (Section 3.3). Fuel model typing was conducted in the field for the Bluffs concurrent with site hazard evaluations. Based on field analysis, three different fire scenarios were evaluated for the Bluffs, including:

The unique terrain and fuel models used for BehavePlus modeling for the Bluffs are presented in Table 1 and the results of modeling efforts are provided in Table 2. Locations of BehavePlus model runs are presented graphically in Figure 2. Based on the BehavePlus analysis, expected flame lengths on the bluff top portions of the property (Scenario 1) reach up to 12.7 feet during

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

97th percentile weather conditions with wind speeds of 69 mph (documented maximum gust speed observed in the region during the 2007 Canyon Fire). Fireline intensities in this scenario reach up to 1,415 BTU/feet/second and spotting distances reach 1.2 miles. In the drainage located in the central portion of the property (Scenario 2), maximum flame lengths reach 49.7 feet in coastal scrub vegetation during 97th percentile weather conditions and the same wind speed values. This area also presents fireline intensities reaching 27,631 BTU/feet/second and spotting distances up to 3.3 miles. The results from all BehavePlus fire behavior modeling scenarios are presented in Table 2.

- **Scenario 1:** Non-native grasslands on coastal bluff top, near proposed campgrounds.
- **Scenario 2:** Coastal scrub in drainage in central portion of property.

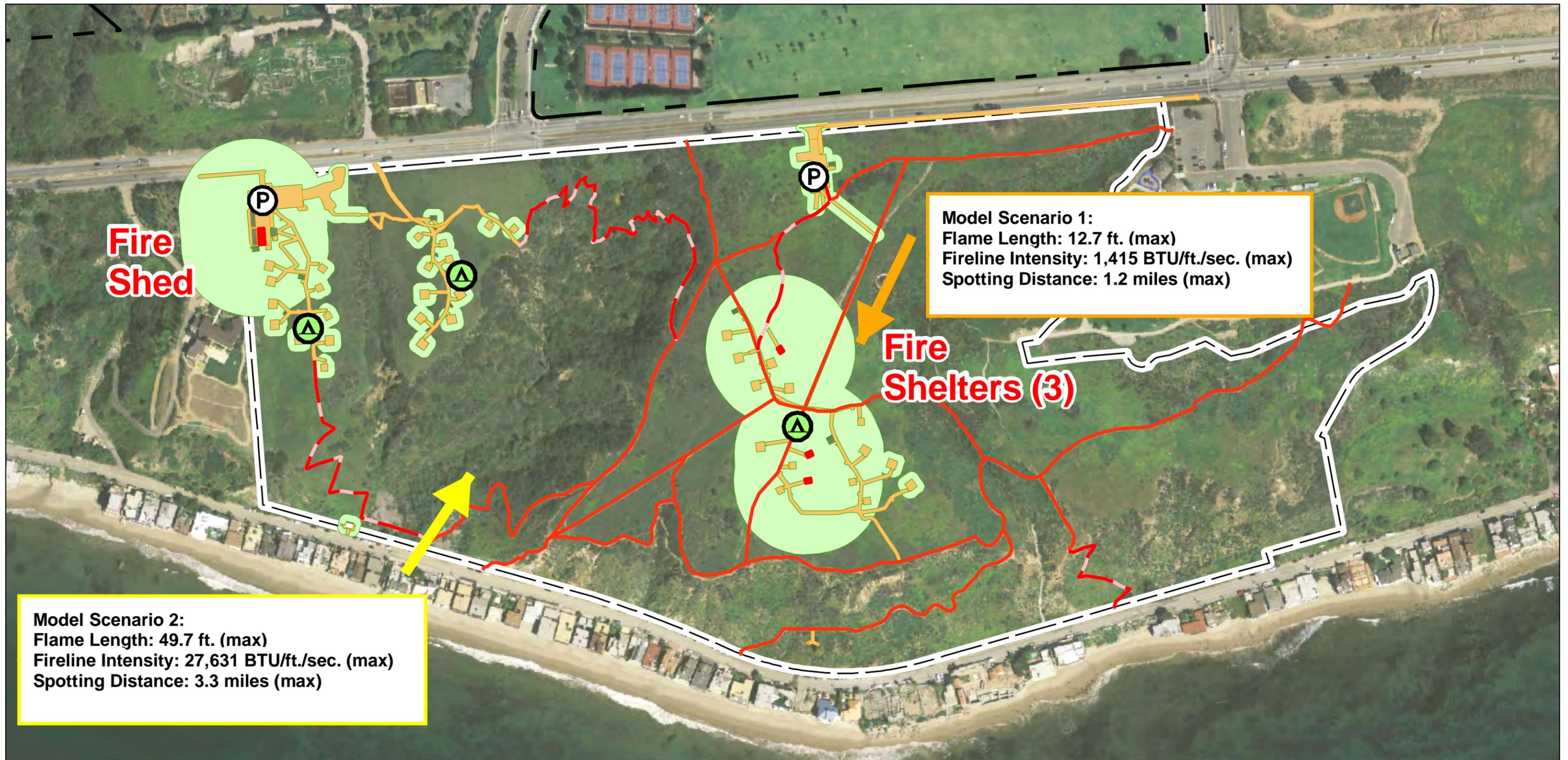
**Table 1
Fire Behavior Model Variables**

Scenario	Fuel Model	Slope	Aspect
1	1, Non-Native Grassland	15%	South
2	SCAL 18, Coastal Sage Scrub	25%	West

**Table 2
BehavePlus Fire Behavior Model Results**

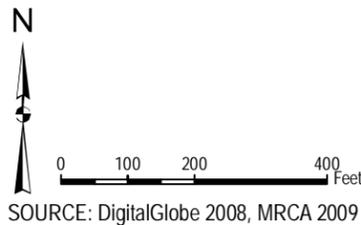
Scenario	Flame Length (feet)	Fireline Intensity (BTU/feet/second.)	Spotting Distance (miles)
<i>Scenario 1: Non-Native Grasslands On Coastal Bluff Top, 15% Slope</i>			
On-shore (50th Percentile)	4.9	179	0.2
Santa Ana (97th percentile with 69mph gusts)	12.7	1,415	1.2
<i>Scenario 2: Coastal Scrub In Drainage, 25% Slope</i>			
On-shore (50th Percentile)	16.4	2,481	0.4
Santa Ana (97th percentile with 69mph gusts)	49.7	27,631	3.3

NOTE: The results presented in Table 2 depict values based on inputs to the BehavePlus software. Changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis. Model results should be used as a basis for planning only, as actual fire behavior for a given location will be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns.



Model Scenario 2:
 Flame Length: 49.7 ft. (max)
 Fireline Intensity: 27,631 BTU/ft./sec. (max)
 Spotting Distance: 3.3 miles (max)

Model Scenario 1:
 Flame Length: 12.7 ft. (max)
 Fireline Intensity: 1,415 BTU/ft./sec. (max)
 Spotting Distance: 1.2 miles (max)



- Proposed Camping Area
 - Proposed Parking Area
 - Proposed Facilities
 - Fuel Modification Zones
 - Malibu City Limits
 - Park Boundaries
- Trail Corridors**
 - Primary Trail (see P&S Project Plans)
 - Primary Trail (Existing)
 - Connector Trail (Existing)
 - Backbone Trail
 - Other Existing Trail

FIGURE 2
 BehavePlus Analysis Map

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Focused Fire Protection Plan
Modified Redesign Alternative**

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Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

4.2 Result – Exposure to Wildland Fire

Given the climatic, vegetation, wildland-urban interface location, and topography characteristics along with the fire history, ignition sources, and fire behavior modeling results previously discussed in this FPP, the project site is determined to be potentially vulnerable to wildfire burning onto or spotting onto the site. Based on this information and the recorded history of fires in the area, along with the persistence of naturally vegetated open space within and surrounding the Bluffs, it is expected that wind-driven wildfires could occur near and/or on this site in the future.

Under the most severe fall weather conditions, fire can move rapidly through the site's fuels. The most common type of fire anticipated in the vicinity of the project area includes an ignition along PCH or spotting from a large wildfire from the north, driven by offshore winds. The site may also experience fire from the south, possibly igniting off Malibu Road, and driven by an on-shore wind. Worst-case flame lengths were calculated at approximately 49.7 feet in the coastal scrub vegetation types, with those in dry flashy fuels (grasses) along the bluff top reaching 12.7 feet under extreme weather conditions.

5.0 PROJECT EMERGENCY RESPONSE, INFRASTRUCTURE, AND FIRE PROTECTION FEATURES

The Malibu region experiences periodic wildfire and this site has burned, including the recent 2008 Bluffs fire (refer to Figure 4 of the Master FPP). It can be reasonably anticipated that the Bluffs will be exposed to wildfire in the future. As such, this FPP provides a summary of existing and proposed infrastructure and special measures to provide for fire protection.

5.1 Emergency Response

The Project Site is located within the City of Malibu and unincorporated Los Angeles County, which receive fire protection and emergency services from the Los Angeles County Fire Department (LACoFD). LACoFD is under contract to Cal Fire for State Responsibility Area (SRA) fire protection. LACoFD provides initial response to SRA fires, and Cal Fire provides response when necessary based on size and type of fire. Regionally, LACoFD provides fire, emergency medical, and rescue services from 22 battalions and 170 stations. The Department serves over 4 million residents throughout 58 cities and all unincorporated portions of Los Angeles County. The Project Site lies within the jurisdiction of Battalion 5, which consists of 12 stations. The entire Bluffs property lies within the City of Malibu. The City is served directly by four LACoFD fire stations (Stations 70, 71, 88, and 99); however, additional stations within the LACoFD are available to service the City if necessary. Additionally, the Ventura County Fire

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

Department (VCFD) and the National Park Service (NPS) are available indirectly to provide fire services to the City if needed.

LACoFD Station No. 88 is located at 23720 Malibu Road is the closest fire station at 0.9 mile from the Park. The response time of arrival is expected to be within approximately 5 minutes, roughly the same as the average 4.8-minute response time for urban areas achieved by the LACoFD, based on 2006 statistics (County of Los Angeles 2008). Fire Station No. 70, located at 3970 Carbon Canyon Road, is approximately 3.2 miles from the Project Site entrance and estimated response time is expected to be less than 10 minutes. Additionally, Fire Station 71 at 28722 PCH is roughly 7.3 miles from the entrance and Fire Station 99 is roughly 11.9 miles from the site.

Typical brush-fire response at Escondido Canyon Park and/or Latigo Trailhead would include the following:

- 5 Engines, 1 Dozer, 3 Copters/ 2 Flycrews, 4 Camp Crews, 3 Superintendents, 2 Battalion Chiefs, 1 Patrol
 - The flycrews land on the incident with a Division Superintendent and attack the active flank, advancing to the head of the fire.
 - Ground crews arrive on scene and are designated to anchor the fire at the point of origin and improve the fire line from the flycrews scratch line, to an impassible firebreak. Hazards are addressed, snags relieved, possible rolling material trenched, and doglegs widened.
 - Battalion Chiefs assume Incident Commander responsibilities, in accordance with the Helicopter Coordinator (HELCO) and previous on-scene commanders.

It is expected that the initial arriving BC would evaluate the need for additional resources based on several factors.

In addition to the LACoFD and neighboring National Park Service and VCFD fire fighting capabilities, the Santa Monica Mountains Conservancy (Conservancy) and Mountains Recreation and Conservation Authority (MRCA) assists local fire departments in fighting wildland fires in protecting the array of resources on and off its own properties. The response time for initial attack is anticipated to be within a few minutes of fire notification and as such, the MRCA will likely be the first or second responder to wildfire starts on or near their properties. The MRCA:

- Maintains constant communication and mutual aid agreements with the Los Angeles County Fire Department, the Los Angeles City Fire Department, the Ventura County Fire

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

Department, California State Parks, and the National Park Service, to promote cooperative efforts to prevent and defend against wildfire.

- Conducts a formal Fire Academy, certifying MRCA wildland fire fighting personnel to Federal and State standards. This program also trains state and regional firefighters, including the Local Fire departments and resource agencies. The MRCA academy provides continuing education, including; advanced training in wildland fire behavior, emergency medical services (EMS), and urban interface fire fighting.
- Deploys its own fire fighting equipment Fire fighting apparatus, including one four-wheel drive Type II fire engine, one Type I Class A foam engine, one four-wheel drive Type III engine with Compressed Air Foam System, two Type III engines, one water tender, two mobile command units, 40+ chainsaws, two four-wheel drive Type IV engines equipped with Compressed Air Foam System and a minimum of 300 gallons of water and eight four-wheel drive Type IV engines equipped with a minimum of 200 gallons of water. In addition, MRCA stores water and portable high pressure firefighting pumps for fire fighting purposes at this facility. In addition, MRCA provides helicopter-landing zones on its properties for Ventura County Fire Department, Los Angeles County Fire Department, and Los Angeles City Fire Department helicopters.

Based on the available fire fighting resources on site and in the vicinity of the site, adequate resources are available to respond to typical wildfire emergencies for suppression and life safety activities anticipated in the vicinity of this site. This is especially the case because, as described in detail in later sections of this FPP, during the periods where the probability of extreme or catastrophic wildfire occurring would be highest (Red Flag Warning Periods), activities at the Bluffs would be suspended, negating the potential increase in wildfire risks associated with the proposed park uses and human presence on the site.

5.2 Water Supply

Two sources of water will be available at the Bluffs. The existing pressurized lines as well as two 10,000-gallon water tanks.

A 10 inch or 12 inch water mainline would be extended within PCH to provide 4 in. lateral water service to both Parking Area 1 and Parking Area 3. A fire hydrant, supplied via the existing mainline, would be provided within each parking area. In addition, two 10,000 gallon water tanks are proposed adjacent to the northern border of Parking Area 1 as an emergency water supply. Five existing fire hydrants along PCH north and northeast of the Bluffs are served by a pressurized water main and are measured at 3,000 gallons per minute (LA County Water Works).

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

Based on these flow, on-site fire flow at provided hydrants is estimated to be at least 1,500 gpm and may be as high as 3,000 gpm.

5.3 Fire Access Roads

Fire access roads to the park improvement areas will be limited to two entrances off PCH, one in the north central portion of the project and one in the northwestern portion of the property east and west of the John Tyler Drive intersection, respectively (Figure 1). The access driveway aprons are 45 feet wide and 80 feet wide. The aprons feed the access driveways which lead to three paved parking areas and an overflow parking area that will not be paved. A 10-foot wide service access road (340 feet in length), located east of the driveway to Parking Area 1, is proposed to allow for service and emergency access to be provided to Camp Areas 2A and 2B; the access would be gated and locked when not in use. No other roads are proposed for the Bluffs. There will be no vehicular access from Malibu Road.

Dead Ends

Each of the parking areas offers fire engine turnaround. The northwestern project area parking lots are connected via a looped roadway.

Width

Access driveway widths will be 20 feet unobstructed by parking for the northwestern and north-central parking areas, respectively.

Grade and Departure Angle

Road grade and Departure Angle comply with the Fire Code.

Bridges

Bridges provided at the northwestern parking areas will be designed and maintained to ensure they will safely support 75,000 pounds for fire apparatus access. The wood bridge shall be maintained in sound condition to ensure safe and adequate emergency access.

Surface

All road and driveway surfaces will be asphalt concrete pavement capable of supporting travel by minimum 75,000-pound apparatus with the exception of the overflow parking area in the extreme northwestern corner of the Bluffs. That surface will be hard packed gravel or similar and will be capable of supporting responding fire apparatus.

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

5.4 Building Construction

There are two permanent camp host and/or park administration/employee quarters planned for the Bluffs along with self-contained, non-combustible restrooms, two RV camp host accommodations, a metal fire engine shed, and three optional emergency fire shelters.

The permanent residences will meet building and fire codes for ignition resistance and all other structures will meet or exceed code, as applicable. Three optional fire shelters for contingency, last resort, temporary sheltering during wildfire will be provided at the Bluffs, two in Camp Area 3 and one in Camp Area 4. These shelters are a last resort and training will be required of campers who could potentially need to use them. Rangers will routinely inspect the shelters and associated features for correct functioning. The shelters (and the host accommodations) will be able to accommodate the maximum number of potential campers for each camp area.

Each optional, emergency fire shelter would have a window and a door and would be made of Timbercrete or cement-based equivalent. Timbercrete has a very high fire resistance, exceeding a 4 hour exterior rating (Appendix G of the Master FPP) and includes insulated metal fire resistant door, fire resistant triple paned glass window, and a fire resistant “spy hole.” The system used to prevent smoke and gas from entering the structure includes airtight construction for all but the door surround. The structures would be equipped with an air tank that can be turned on as a fire approaches. This slightly pressurizes the structure, forcing excess cooler air out around the small gaps surrounding the door, preventing smoke or gases from entering the structure. The structures will be placed on 0.75-inch gravel base, and are self-leveling. These shelters would be 10.5 feet (width) × 11.8 (length) feet × 10.5 feet (height) and up to 12 feet (w) × 16 feet (l). The smaller shelter could, in an emergency situation, temporary shelter up to 17 people, based on 7 square feet per person. The larger structure could temporary shelter up to 27 people for a short period. The structures will be painted with ignition resistant paint colors that are earth-toned, camouflage, or otherwise compatible with the existing landscape. . Locations of the emergency fire shelters are provided in Figure 1.

5.5 Fire Protection Systems

The two permanent camp host and/or park administration/employee quarters will include interior fire sprinklers. No automatic fire sprinklers are proposed for the other occupancy types, including the RV host accommodations, restrooms, optional emergency fire shelters, or fire engine sheds.

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

5.6 Defensible Space

The extents of the fuel modification program are illustrated in Figure 1. In summary, it will focus on:

- **Campsites, Parking, Restrooms, and Camp Host RV Accommodations Fuel Modification:** A total of 20 feet of fuel modification in one zone will be provided. The fuel modification area adjacent to all sides of these improvements will consist of thinning zones where existing vegetation is removed to represent a 75% thinning (from existing conditions) for the extent of the 20-foot-wide zone. Thinning will include removal of highly flammable plant species, dead, and dying plant material, creating horizontal and vertical spacing, mowing grasses and understory plants to 3-inch height, and creating a highly interrupted, non-continuous fuel zone, as described further in this section. Plant species and maintenance requirements will be consistent with those in LACoFD's Zone A and B as described above, with the exception of irrigation.
- **Fire Access Road Zone:** This zone extends 20 feet (twice code requirements) from the edge of any proposed public or private roadway (excluding driveways), and may be used as access for firefighting apparatus or resources. Note: in select locations for some parking and roads on the Bluffs, fuel modification will be 10 feet wide (consistent with LACoFD requirements) to avoid/minimize native vegetation impacts.

Specific Requirements – Fire Access Road Zone

- Clear and remove flammable growth for a minimum of 20 feet on each side of Fire Access Roads (Fire Code Section 317.10) or to property or easement line, or other similar LACoFD required measures consistent with Fire Code allowances;
- Fire access roads, driveways, and turnarounds shall be maintained in accordance with Fire Code. Fire Access Roads shall have unobstructed vertical clearance (Fire Code Section 503.2.1) of a minimum of 13 feet 6 inches.
- Landscaping and native plants within the 20-foot Fire Access Road Zone shall be appropriately spaced and maintained to provide safe egress in wildland fire environments, including the removal of high Btu producing elements.
- **Fire Engine Shed Fuel Modification:** A total of 100 feet of fuel modification in two zones will be provided for the fire engine truck shed. Based on the terrain and vegetation surrounding shed location, 100 feet is considered sufficient for protection of this non-combustible, metal shed. The fuel modification area adjacent to all sides of the shelters will consist of thinning zones where existing vegetation is removed to represent a 75% thinning (from existing conditions) in the first 50 feet and a 50% thinning (from existing

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

conditions) for the next 50 feet, to 100 feet total. Thinning will include removal of highly flammable plant species, dead and dying plant material, creating horizontal and vertical spacing, mowing grasses and understory plants, and creating a highly interrupted, non-continuous fuel zone. Plant species and maintenance requirements will be consistent with those in LACoFD's Zone A and B as described above, with the exception of irrigation.

- **Optional Emergency Fire Shelter Fuel Modification and Camp Host and/or Park Administration/Employee Quarters:** A total of 200 feet of fuel modification in four zones will be provided for each emergency fire shelter and camp host and/or park administration/employee quarters. The fuel modification area adjacent to all sides of the shelters will consist of thinning zones where existing vegetation is removed to represent a 75% thinning (from existing conditions) in the first 100 feet and a 50% thinning (from existing conditions) for the next 100 feet, to 200 feet total. Thinning will include removal of highly flammable plant species, dead, and dying plant material, creating horizontal and vertical spacing, mowing grasses and understory plants, and creating a highly interrupted, non-continuous fuel zone free of sustained high Btu producing elements. Plant species and maintenance requirements will be consistent with those in LACoFD's Zone A and B, with the exception of irrigation.

5.7 Vegetation Management

An annual vegetation management plan for each Park will be prepared by SMMC/MRCA with special focus provided for road interface areas, parking area adjacency, emergency fire shelters, camp host and/or park administration/employee quarters, and campsites. All Fuel Modification Zone maintenance will be completed at least annually by May 15 of each year and more often as needed for fire safety, as determined by the appropriate fire agency. MRCA will provide on-going/as-needed fuel modification zone maintenance that will include:

- Pruning of foliage to reduce fuel load, vertical continuity, and removal of plant litter and dead wood.
- Removal or thinning of undesirable combustible vegetation and replacement of dead or dying landscaping.
- Chipping removed material to at least 4 inches diameter and distributing on site in fuel modification areas around campsites to reduce likelihood of weed growth.
- Pruning lower branches of trees and tree-form shrubs to one-third of their height (or 6 feet from the lowest hanging branches) to help prevent fire from spreading upward into the crown.

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

- Maintaining ground cover at a height not to exceed 18 inches. Annual grasses and weeds shall be maintained at a height not to exceed 3 inches.
- Removing accumulated plant litter and dead wood. Debris and trimmings produced by thinning and pruning should be removed from the site or chipped and evenly dispersed in the same area to a maximum depth of 5 inches.
- Complying with these FPP requirements on a year-round basis. Annual inspections are conducted following the natural drying of grasses and fine fuels, between the months of April and June, depending on precipitation during the winter and spring months.
- Preparation of Plan area-specific fuel modification plans will commence and be completed prior to site preparation work. The fuel modification plans will be prepared by a qualified fire protection planner and will include CAD-generated drawings of the improvements and specific fuel modification requirements for each improvement. Final fuel modification plan approval will be provided by the appropriate fire agency.

It is encouraged that neighboring property owners, especially those to the south of the Bluffs provide defensible space around structures as required by LACoFD and state law (Public Resources Code, Section 4291). The combined efforts will improve the overall fire safety and reduce risk.

Construction period vegetation management will be consistent with requirement of LACoFD and the Master FPP, Section 5.2.1.

6.0 SITE-SPECIFIC FIRE PROTECTION MEASURES

The following customized measures have been developed based on the proposed Bluff enhancements, the assessed wildfire risk, and the need for site-specific fire prevention, suppression, pre-planning, and relocation planning for the camping uses planned for the project.

1. Notification and enforcement of all standard park rules and regulations per existing policies of the Conservancy/MRCA will continue to occur. Most notable among these that pertain to wildfire include:
 - a. The Bluffs will be closed sunrise to sunset; except in designated camp areas
 - b. No smoking or fires.
 - c. No alcoholic beverages.
 - d. No littering or dumping.
 - e. No unauthorized vehicle use.

**Santa Monica Mountains Conservancy-Owned Malibu Bluffs
Focused Fire Protection Plan
Modified Redesign Alternative**

- f. Possession of firearms, bow, and arrow prohibited.
 - g. Violations subject to \$1,000 fine and/or 6 months in County jail.
2. No person shall make or maintain, nor aid and abet others in making or maintaining, a campfire or any other open fire at the Bluffs. The only cooking apparatus permitted shall consist of provided flameless surfaces, when permitted and only in designated areas. Only battery or solar powered lanterns shall be permitted.
3. Campers shall be required to utilize designated, flameless cook stations (hospitality stations) provided at each approved campsite, which shall be designed of nonflammable materials and capable of being enclosed vertically on three sides. Cold-camping apparatus such as flame-less cook-stoves and lanterns shall be required. Prospective campers shall be informed of the No Campfire/Cold Camp Policy upon reserving and/or registering for use of camp facilities and will be offered the opportunity to check out a dual burner electrical hot plate for cooking purposes during their stay. Small electric cooking appliances may be brought with campers, subject to inspection and approval by MRCA rangers, camp host, or staff. To facilitate the use of flameless cook surfaces, each approved camp site will be provided an all-weather electric outlet. Further, campers will be put on notice that unauthorized use of fire-related camping and cooking apparatus specifically prohibited by the No Campfire/Cold Camp Policy (including liquid fuel: alcohol, kerosene, unleaded gasoline, white gas, mentholated Spirit, etc.; canister fuel (propane, butane, etc.; wood, wax or any other type of combustible material, etc.) will be cause for confiscation of such devices and/or expulsion of visitors from camp facilities. Signs shall be posted and camp areas will be routinely patrolled to enforce the No Campfire/Cold Camp Policy and notification provided that violation of the No Campfire/Cold Camp Policy may be punishable by fines up to \$1,000.00. In addition, campers would be notified that use of the cook station electrical outlet(s) for space heaters, lighting sources, hair curling and flattening devices, blow dryers, stereos or other devices emitting audible noise would be cause for confiscation of such devices and/or expulsion of visitors from camp facilities
4. Fire protection equipment shall be provided and maintained at all camp facilities and shall include, at a minimum:
- a. Two 10,000-gallon water storage tanks as a secondary source for fire fighting
 - b. Fire hydrants supplied by water lines connected to existing public system designed, located, and maintained to provide a dependable water supply for fire protection at proposed camp areas at all times=

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

- c. Three optional emergency fire shelters will be provided for last resort sheltering should off-site relocation not be possible
 - d. Two Camp Host and/or park administration/employee quarters will be maintained as temporary on-site shelters to be used for sheltering campers in the unlikely event that relocation is not possible. The shelters will be constructed to 2007 ignition resistant standards and will include maintained fuel modification areas.
 - e. A portable and air-powered quick attack firefighting system will be provided at each camp facility for ready deployment by trained Camp Host, Ranger, or park personnel in the event of a fire.
 - f. Portable self-contained fire extinguisher units to be provided for each cluster or group of campsites.
 - g. The Bluffs will include a 45 feet x 15 feet x 12 feet steel structure on concrete slab for housing two fire engines or units along with miscellaneous fire protection equipment (Figure 1).
 - h. Self-contained restrooms will be constructed of non-combustible materials.
5. The Bluffs shall be closed to all recreational use, camping reservations or other functions during any Red Flag Warning day/period, Flash Flood/Flood Warnings or Urban/Small Stream Advisory as declared for the Santa Monica Mountains area by the National Weather Service, a division of the National Oceanic Atmospheric Administration (NOAA). Signs shall be posted and park areas shall be patrolled to notify park users and to enforce restrictions on park use and notification provided that violation of the Red Flag Warning day closure policy may be punishable by fines up to \$1,000.00. Written warnings of the park closure and use cancellation policy shall be provided to potential campers and prospective program and event sponsors prior to contracting for park use.
6. Wildland fire-trained employee(s) and/or camp host(s) shall be on site at each park property during the times when camping is permitted. Camp Hosts shall be public officers designated pursuant to the MRCA Park Ordinance as authorized by the Public Resources Code. When camping is not permitted, rangers will make regular patrols. See Patrols text (Chapter 2.0). To ensure adequate staffing and to meet this condition, two permanent camp host and/or park administration/employee quarters and two RV type accommodations will be provided for employees, rangers, hosts who will provide patrols and enforce camp area rules.
7. Campsites will be located within accessible areas and/or within visually observable areas of the Bluffs to ensure easy access for purposes of maintenance and patrol, and in case of emergency.

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

6.1 Relocation Planning

Wildfire emergency response procedures will vary depending on the type of wildfire and the available time in which decision makers from MRCA can assess the situation and determine the best course of action. The project's pre-plan, camp restrictions, adherence to "Ready, Set, Go," for early off-site relocation, and restrictions that prohibit visitors during weather that is most likely to facilitate ignition and spread of fire, are considered priority components of this FPP. The Barwood building at Ramirez Canyon Park currently serves as the Western Sector Emergency Operations Center for the MRCA, with full computer and radio dispatch capabilities in the event of an emergency. Trained dispatch personnel would be on-site at the Barwood building during a wildfire emergency. This Plan area resource provides an additional layer of support for the relocation strategy by offering heightened access to important wildfire information and for determining which relocation option to employee. Among the Barwood building communications and information support capabilities:

- VHF Base radio – high powered stationary radio with a fixed repeater in Upper Ramirez Canyon
- Satellite phone
- VHF Hand held radios (numerous)
- GIS mapping center
- Phone System
- Inforad Emergency Paging System.

6.1.1 Wildfire Emergency Pre-Plan

The MRCA has pre-planned for wildfire emergencies and will continue to update the relocation component of that pre-plan for the Bluffs. Subject areas that shall be included in the emergency preparedness planning for the Bluffs include:

- Staff training (by MRCA, LACoFD)
- Facility Protection (as defined in this FPP)
- Grounds Protection (fuel modification zones)
- Fire Prevention during Red Flag Warning periods
- Emergency Supplies (fire extinguishers, First-aid kits, etc.)
- Telephones/Communications

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

- Web based communication tactics – text messages, e-tools for information, education, and critical notifications
- Command List
- MRCA Emergency Operations Plan
- Annual Review and Update
- Emergency Notification Procedures
- Advisement of Potential Fire Danger
- Emergency Relocation/Evacuation Plan.

- Temporary sheltering in Optional fire shelters.

The following relocation scenarios are provided for illustration of decision-making and alternatives. The term "relocation" is used instead of "evacuation" as the term indicates an orderly, pre-planned process where people are relocated from one area to a fire shelter or to an off-site area. Orderly movement of people is the result of planning, training, education, and awareness, all of which will be proactively implemented by MRCA.

The preferred and highest priority is early relocation from the Bluffs to off-site areas away from wildland fuels. This is evidenced by and will be aided by the fact that on declared Red Flag Warning days/periods, the Bluffs will be closed to visitors and any other activities, including camping. This closure removes visitors from the Plan area corresponding with the periods that have historically produced the largest and most dangerous wildfires. However, because southern California's fire season is now considered to be nearly a year-round event, wildfire may occur when persons are at the site on non-Red Flag Warning days, perhaps during high fire season. Fires in the absence of high winds and low humidity during these periods would be expected to have much less aggressive behavior, but still requires provisions for early relocation and for contingency, "last resort," temporary, on-site, optional sheltering, should relocation from campsites be determined to be more dangerous than remaining on site. The following sections discuss emergency response decision making and the relocation and temporary on-site sheltering alternatives available for Bluffs visitors.

Relocation of the site's staff and visitors in the event of a wildfire would depend on the fire's location and behavior. Relocation can be achieved via the following optional routes:

- **Central Walk-in Campsites:** Walk-in campers at either of the two walk-in camp areas in the central portion of the Bluffs will relocate via trails to the north toward the parking areas, then onto PCH, east or west bound. Alternatively, if conditions indicate that

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

returning to parking areas is too dangerous, heading south toward Malibu Canyon Road from one of four trails that provide passage. Worst case conditions may make it necessary to temporarily shelter on site in optional fire shelters, as introduced earlier and discussed in greater detail in following sections.

- **Northwest Campsites:** The two camp areas in the northwest corner of the Bluffs are within 1 to 3 minutes walk to the parking areas. Relocation will include relocating to the parking area and then exiting the Bluffs onto PCH. It is unlikely that campers in these two camp areas would relocate to the south given the distance and potential exposure. An optional fire shelters will be provided for these camp areas and would be available as a contingent measure in the unlikely event that campers are caught in a wildfire and do not have time to relocate from the area.
- **Day-Use Picnic Area:** Users of the picnic areas in the southern portion of the Bluffs will relocate by using provided access trails to Malibu Canyon Road where parking is provided. Because these areas do not allow overnight use, fire shelters will not be provided.

As identified in this FPP, in case of wildfire, the preferred plan is early relocation and it is estimated that relocation will be implemented in all but the rarest of wildfire events. Early notification of the MRCA Command and administrators and subsequently of staff and visitors is critical to the timely and safe relocation to designated off-site relocation areas. As indicated in numerous recent wildfires in southern California, including the 2009 Jesusita wildfire in Santa Barbara and the 2007 San Diego County fires, early notification combined with an organized relocation strategy and implementation is an effective means of moving people out of harm's way.

On at least an annual basis, MRCA firefighting personnel will conduct fire relocation drills at the Bluffs to train staff on efficient and effective relocation of this area during a wildfire. MRCA fire fighters will observe and participate in this annual drill and will have the authority to revise the procedure as necessary to provide the most efficient and safest relocation process. In addition, MRCA will hold regular relocation drills with timed facility sweeps for visitor "round up." The sweeps are estimated to take a maximum 25 minutes and include trails and campsites at the facility (excluding remote trails at night). Continued property sweep training will be included in the overall MRCA fire safety training program.

If relocation of the Bluffs visitors is required, the following procedures will be followed. (NOTE: Relocation of the Bluffs visitors, at maximum usage (estimated average daily population of 65 people) may require in excess of 35 minutes – based on the typical time from notification of a fire to leaving the area).

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

Relocation of Bluffs visitors will typically occur during large, distant wildfire events that, due to weather patterns and difficulty in gaining control, could threaten the area. Under this scenario, MRCA fire fighters and administrators would evaluate the wildfire event and determine at which point relocation would occur, with a conservative trigger threshold (i.e., relocations will be required well before fire is threatening the greater Malibu area).

As mentioned, on declared Red Flag Warning days/periods, when wildfire potential is high and fire behavior is unpredictable, the Bluffs will be closed to visitors, including campers. On non-Red Flag Warning days, when wildfire potential is lower and wildfire behavior is more predictable and controllable, visitors will be allowed. On a non-Red Flag Warning day, should a wildfire occur that allowed time to relocate, visitors would be quickly relocated off site with the assistance of MRCA's internal pre-plan which includes Ranger delivered warnings, visitor gathering, and disbursement without the need for local law enforcement assistance, as described below.

In the event of a notification of wildfire and the decision to relocate:

- Staff will conduct a sweep of the facility and of the trail system within the vicinity of the Bluffs to notify hikers/pedestrians of the relocation decision. Hikers will be briefed at check in and by signage regarding wildfire danger and responses. MRCA Rangers will broadcast an alarm/siren (vehicle mounted or portable public address system) so hikers on trails beyond the immediate vicinity of the Park and Trailhead are alerted and return to their vehicle. Communication with registered campers will be via a vehicle mounted or portable siren/warning signal, cell phone (cell phone numbers will be collected at check in and may be utilized for tracking individuals' locations via GPS in an emergency) and may include the use of e-tools to support critical notification such as text messages, twitter alerts, or other e-alerts, and/or when possible, trail sweeps by MRCA Rangers. To retain camper privacy, all camper personal cell phone and text information will be purged from the MRCA digital and/or hard copy file within one week following camper departure. This information will not be used for any other purpose than emergency or camping-related contacts. In addition, another resource available for notification that has been used in the past, MRCA's Interagency Pre-Plan includes coordination with LA County Sheriff's Office for helicopter assistance with notification and/or rescue of remote trail users during emergency situations. Visitors will be directed to their vehicles or to exit the Bluffs via the south trail access points, if conditions permit. Visitors without vehicle transportation will carpool with other visitors or with MRCA staff. Visitors with special needs will be provided assistance by MRCA rangers, as necessary, so that relocation occurs in a safe and efficient manner.

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

- Vehicles will exit the site via the primary site access points and onto PCH.
- The vehicles will drive either east or west on PCH, as directed by MRCA fire personnel and/or law enforcement, depending on location of fire front and direction of fire movement. Staff and visitors will be directed by law enforcement to designated off-site safe areas.

6.2 Temporary On-Site Sheltering – Contingency Option

It is considered very unlikely that a wildfire scenario will occur that would preclude safe relocation of the Bluffs visitors to off-site areas. However, in the rare event that there is not enough time to safely relocate out of the area, such as fires igniting within or directly adjacent the Park and driven by a wind from the north or south on a non Red Flag Warning day (when people could be at the site), appropriate actions will be employed. Conditions like these may result in MRCA Camp hosts determining that all or some of the site's campers will need to temporarily relocate to Malibu Bluffs Park's irrigated lawns or ball fields, the adjacent Pepperdine lawn areas or, in the extreme situation, seek emergency shelter in the optional on-site, fire shelters described in Section 6.0. These structures will provide a safer alternative to remaining out of doors in situations where fast moving wildfire makes relocation from the area too dangerous. This FPP stresses that on-site sheltering is a "last-resort" with early relocation off site as the preferred priority.

Assuming the estimated average daily population 65 people on site and on a given day (outside the High Fire Season), it is estimated that it could require 35 minutes or more to locate registered visitors, and direct them to the fire shelter(s). The fire shelters and camp host and/or park administration/employee quarters provided at the Bluffs will be sized sufficiently to temporarily shelter the maximum number of campers that may be on site.

As mentioned, MRCA will hold regular relocation drills with timed facility sweeps for visitor "round up." The sweeps will include the park facilities and campsites (excluding remote trails). Audible alarm/sirens (vehicle mounted or portable public address system) will be broadcast from several locations as a first attempt at communication. Remote trail hiker's with provided cell phones numbers will be called and all others will be texted or e-alerted (when possible) as a secondary communication attempt to alert remote trail hikers of the need to return to the Park as quickly as possible. Lastly, remote trails will be swept by MRCA Rangers if adequate time is available.

In cases where temporary sheltering is required, MRCA Rangers will direct hikers/visitors to the optional fire shelters upon making contact during the park sweeps and warning period. All

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

registered visitors will be familiar with the fire shelters, their purpose, and use based on information that will be provided at reservation and check in.

7.0 CONCLUSION

This Focused FPP has been prepared as an evaluation of the adverse environmental effects that the proposed Malibu Parks Public Access Enhancement Plan - Public Works Plan improvement project, Modified Redesign Alternative at the Santa Monica Mountains Conservancy-Owned Malibu Bluffs may have from wildland fire. It further evaluates methods for reducing those effects to ensure that the above referenced project does not unnecessarily expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

This FPP utilizes a "systems approach" for specifying fire protection measures. The measures consist of the components of fuel modification, structural protection, water supply, fire protection systems, access (ingress/egress), optional emergency shelters and well-planned emergency response and early evacuation of staff and visitors. In addition, the plan memorializes the MRCA's existing pre-planning and fire action plans as well as the recommended and required actions that will be enforced at the Bluffs as part of the area wide fire reduction efforts. This FPP provides details regarding the general fire protection features as well as the site specific, restrictive policies that will govern the site with regards to fire protection.

The requirements and recommendations provided in this FPP have been designed specifically for the proposed improvements adjacent or within the wildland urban interface zone at the Bluffs. Because this project proposes primarily recreation improvements with minimal structural additions, the requirements for fire safety are customized for these uses and, in most cases, are not specifically covered under existing Fire or Building codes. Where possible, the codes are applied or used as guidance. Where infeasible or not applicable, alternative measures are provided that will reduce the likelihood of ignitions, such as prohibitions on camp fires, provision of non-flammable, flameless cook station at campsites, Park closures on Red Flag Warning days, and emergency fire shelters, amongst others. An important additional consideration, fuel modification zones, will be diligently provided at the Bluffs improvement areas and will be maintained on an on-going basis and inspected annually, maintaining the plants at very high levels of ignition resistance and removing all dead and dying materials and maintaining appropriate horizontal and vertical spacing within the zones. In addition, plants that establish or are introduced to the fuel modification zones that are not on the approved plant list will be removed.

Ultimately, it is the intent of this FPP to guide the fire protection efforts for the Bluffs in a comprehensive manner. Implementation of the measures detailed in this FPP will reduce the risk

Santa Monica Mountains Conservancy-Owned Malibu Bluffs Focused Fire Protection Plan Modified Redesign Alternative

of wildfire at this site, will improve the ability to safely relocate people from the area during wildfire events or temporarily shelter them under emergency conditions, and will improve the ability to fight fires on the properties and protect park property and neighboring resources irrespective of the cause or location of ignition.

It must be noted that during extreme fire conditions, there are no guarantees that a given structure will not burn. Precautions and minimizing actions identified in this report are designed to reduce the likelihood that fire will impinge upon Bluff assets or threaten its staff or visitors or that vegetation ignition occurs from Park activities. There are no guarantees that fire will not occur in the area or that fire will not damage property or cause harm to persons or their property. Implementation of the required enhanced construction features provided by the applicable codes and the fuel modification requirements provided in this FPP will reduce the site's vulnerability to wildfire. It will also help accomplish the goal of this FPP to assist firefighters in their efforts to defend structures and reduce the risk to Bluffs visitors.

8.0 MAINTENANCE AND LIMITATIONS

In order to ensure that the proposed park improvements and uses minimize risks associated with wildfire, all components of the fire protection system must be in place and maintained. This FPP, when approved, provides the direction and nexus for that maintenance to occur. Specifically, the MRCA will conduct at least annual inspections of the fuel modification areas, fire protection systems, and infrastructure to ensure that they meet the requirements specified in this FPP.

**Santa Monica Mountains Conservancy-Owned Malibu Bluffs
Focused Fire Protection Plan
Modified Redesign Alternative**

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ATTACHMENT 1
Select Project Area Photographs



Photograph 1. View to the northeast corner of the Malibu Bluffs Open Space site. Note the existence of heavier fuels (sumac) adjacent flashy fuels.



Photograph 2. View to the northwest toward Pepperdine University from the northeastern portion of MHOS.



Photograph 3. View to the west across the MHOS. Note the foreground vegetation is in one of two drainages that occur on site. Proposed campsites are located in grass-dominated areas.



Photograph 4. View of areas proposed for campsite improvements. Note the grass-dominated areas and the drainages with heavier fuels.



Photograph 5. View of southern campsite area location. Note grass-dominated areas intermixed with sumac.



Photograph 7. View of existing sign on Malibu Parks property. Malibu bluffs will include educational signage in pars, at camp areas and along trails as reminders to all that fire safety is critical.

